CE

AERIAL®.de
wir trocknen die Luft

Instruction manual

Condensation dryer
For wall mounting Type AD 110

AERIAL GmbH - Oststraße 128 - 22844 Norderstedt - Germany
Tel.: 0049 40 / 52 68 79 0 - Fax 0049 40 / 52 68 79 20 - e-mail: info@aerial.de

Inhaltsverzeichnis

1	General advice	2
2	Design of equipment and mode of functioning	2
3	Safety	3
4	Installation and transport	3 - 4
5	Electrical connection	4
6	Operation	5
6.1	putting into operation	5
6.2	hygrostat control	6
6.3	condensate outlet	6
6.4	version with pump (optional)	6
6.5	automatic defrosting	7
7	Operating conditions	7
8	Technical data	7
9	Trouble shooting	8 - 10
10	Repair and maintenance	11
11	circuit diagram	11
12	Denotation of the most important components AD 110	12
13	Detail drawing AD 110	12
14	Manufacturer´s declaration	13
15	Purchase data	13

1 General advice

You have bought an air dryer made by AERIAL thus deciding for a proven quality product "Made in Germany". If nevertheless complications should occur, you will find some advice hereinafter how to eliminate such difficulties as quickly as possible.

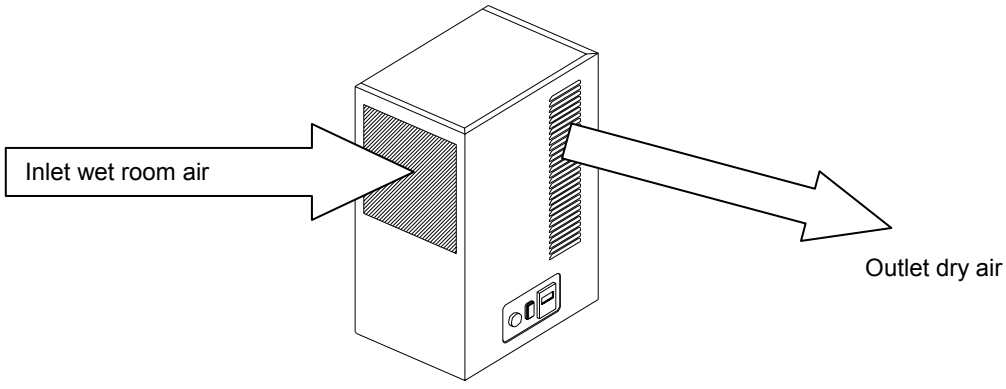
Attention!

- *Immediately after receipt, you should check your air dryer for transport damage! In the case of damage, you should inform the forwarding agent, parcel service, post office etc. accordingly upon receipt, and make a note of it on the forwarding documents!*
- *If a transport damage should be stated after unpacking the equipment, please contact immediately your respective seller.*
- *Before putting your air dryer into operation for the very first time, these instructions for operation should be studied very thoroughly. Thus, you can make sure that this appliance will operate perfectly for a long period of time saving yourselves unnecessary repairs and expenses.*
- *In the case of technical unclarity or faults disconnect your appliance and ensure that it is not connected again by taking the mains plug out of the socket.*
- ***Please, keep the device wrapping in order to be able to send the device safe for guarantee repair. In order to save place you open simply the adhesive tape with a knife and you fold the carton.***

2 Design of equipment and mode of functioning

The AD-air dryer is constructed exclusively for air drying in closed rooms. That dehumidifier can prevent the formation of sweating water, eliminate too high air humidity and hold a specific air humidity unchangeable. The time which the dryer requires in order to achieve a specific humidity depends essentially on the environmental conditions. The attainable humidity value is equally dependent on the environmental conditions.

The AD-dehumidifier works according to the condensation principle with heat recovery. The fan (partial positions see detail drawing) suck the moist air through a cool register (evaporator). The air becomes so far chilled under the point of condensation here, that the steam of air condense as water and flows into the water-collecting tank. The chilled and dried air is warmed up at the condenser again. Through the heat pump effect, the outlet air is some degrees warmer than the sucked room air. Vigour profit can conducted up to 3-fold of the electrical power consumption. The absolute moisture of air is lowered continuously by the continuous circulation of the room air through the device. The surplus moisture is removed takingly and efficiently.



3 Safety

The condensation dryers AD 110 are furnished with protective devices. The devices were subjected to a safety examination. Dangers threaten in the case of operating error or abuse

- for the user.
- for the machine and other real values.
- for the efficient work of the machine.

All persons who have to do with the list, initiation, service and maintenance of the devices must be qualified correspondingly and consider this operating manual precisely.

Using as directed
The condensation dryers are intended for the drying of air with atmospheric pressure.

Risk by accessory
Hoses for condensate removal and air filters must be fit expertly and must not take the protective devices of the condensation dryers out of operation. The control elements must always remain freely amenable.

Authorized users
The service of the condensation dryers AD 110 may only be carried out by persons, that were instructed from the operator . The user is responsible in the field of action third parties compared to.
Responsibilities for different activities on the device must of course be determined and kept. Unclear competences are a safety hazard.
The operator must make the operating instruction amenable for the user and make sure that the user did understand the manual.

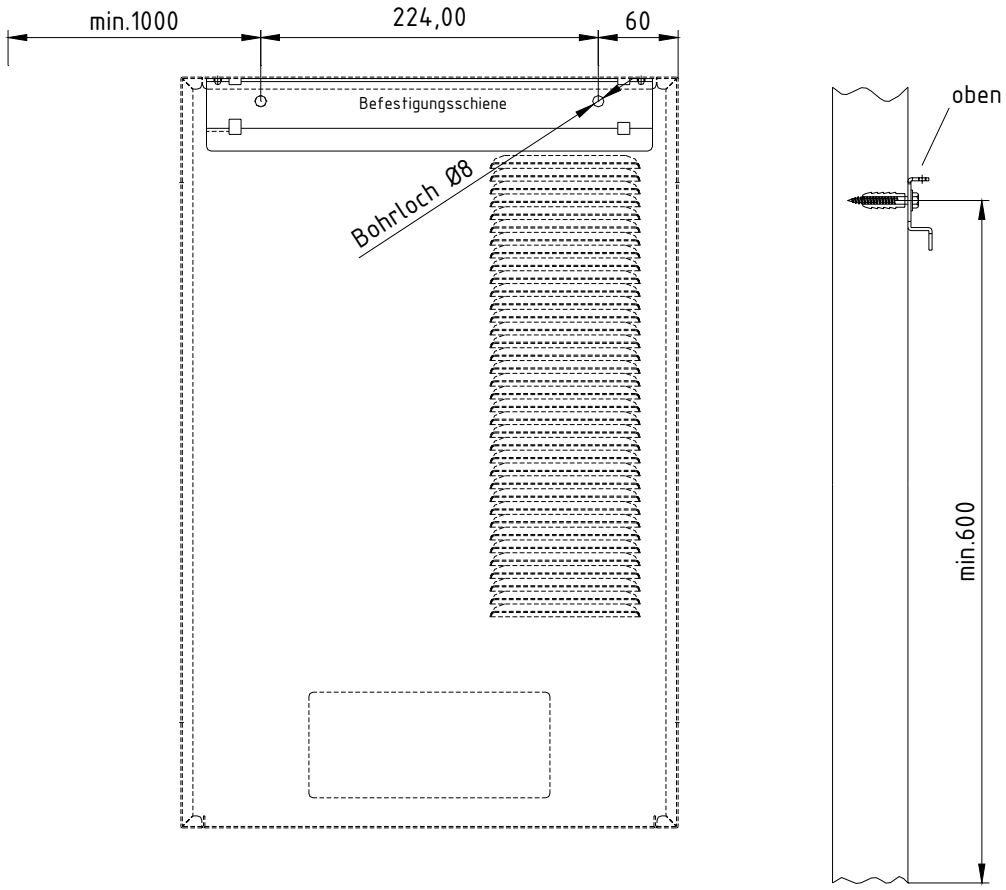
4 Installation and transport

The AD-dehumidifier AD 110 is planned for wall mounting only. During the setting up and transportation of the dehumidifier, the following items are to be considered:

- That dehumidifier must be installed so that the air can circulate without obstruction through him. The air filter and also the lamellae of the front wall must not be covered. The open space before the lamellae and the air filter must at least conduct 1 meter. The open space **under** that dehumidifier must conduct at least 10 cm.
- That dehumidifier is attached with the delivered mounting bar to a wall. (Rough draft following see) The bar is to be arranged with a spirit level.
- That dehumidifier can be transported standing or lying! The standing transportation is to be preferred if possible.
- The appliance must be used exclusively for air drying.

Attention!
Do never pull or move the device at the power cable.

Fixing at the wall



Attention!
Let an open space of at least 10 cm above the mounting bar in order to be able to fix the device on the mounting bar later with an Inbus-screw-driver!

5 Electrical connection

Before connecting the air dryer, the following items must be checked:

- ✓ Does the mains voltage coincide with the voltage of the appliance?
- ✓ Adequate fusing of socket and supply system?
- ✓ Has the required residual-current-operated circuitbreaker (r.c.c.b) been installed in case of swimming baths?
- ✓ If a cable drum is used: has it been unwound completely?
- ✓ Is the appliance connector suitable for the building socket?
- ✓ Is the socket provided with a perfect grounding?

Attention!
Before putting the air dryer into operation, the technical data of the appliance should be compared to the conditions prevailing in the room of installation!

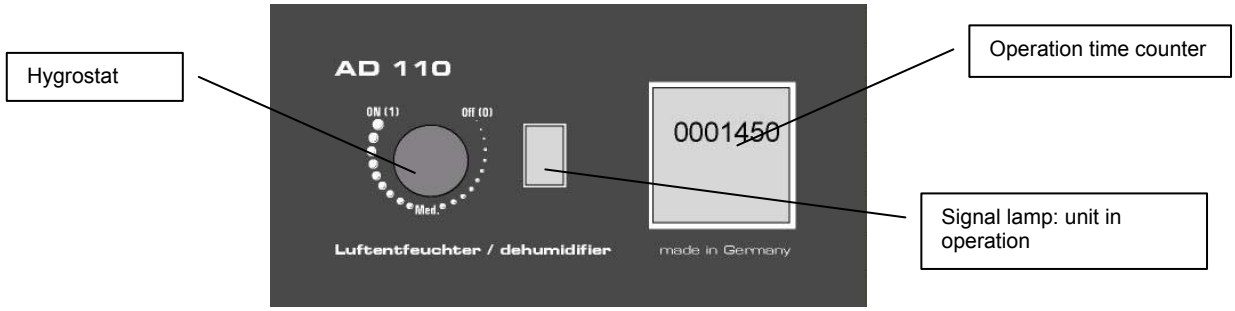
6 Operation

6.1 Putting into operation

> ***Attention!***
> *Before putting the air dryer into operation, the instruction manual should be studied carefully. Thus, damages by a false or inappropriate operation as well as by inadequate environmental conditions can be avoided.*

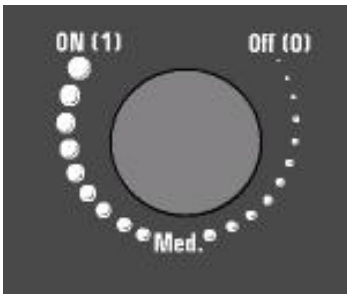
For using the air dryer, please proceed as follows:

- ✓ After having been transported, the air dryer should rest for abt. 15 min. During this period of time, the oil distributed inside the refrigerating system and frothed during transport will return into the compressor. We recommend this procedure since it extends the service life of the compressor.
- ✓ Make sure that a socket and a runoff is near the installation place. When using a device without pump (standard), the runoff must be placed below the unit.
- ✓ Attach mounting bar to the planned wall (see rough draft point 4). Arrange with spirit level!
- ✓ Put up device on the mounting bar. Above the device is itself right and left of in each case a screw. With these screws, the device is to be fixed on the mounting bar.
- ✓ Connect the available hose to a runoff. Guarantee that the hose is attached certainly to the drain and can not slip. If the hose length should not be sufficient, extend the hose with a nipple and two clamps. (Accessory). Test for tightness!
- ✓ The hose must be moved away with slope of the device. The hose must not be buckled..
- ✓ Put the plug into the socket.
- ✓ Switch on the unit at the hygrostat. You find the hygrostat in the front.
- ✓ Adjust the required humidity value at the hygrostat. (see hygrostat-control).
- ✓ Ist he actual humidity higher than the required value, the dehumidifier will start. (= green lamp will light up)
- ✓ Ist he actual humidity lower than the required value the dehumidifier will not start. (= green signal lamp is off)



6.2 Hygrostat control

The air dryers of the AD-series dispose of a hygrostat for setting the required humidity value. This hygrostat is located in the front of the unit. It makes that the air dryer cuts in as soon as the ambient humidity exceeds the preset value. If the humidity value falls below the set value, the hygrostat will switch off the appliance.
The following operating modes can be set by means of the hygrostat:



- The mark on the rotary buttom points to Off "0". The appliance is switched off. No dehumidification occurs.
- The mark on the rotary buttom points to ON "1". The appliance is in the continuous operating mode. A relative humidity of up to 40 % can be obtained.
- The mark on the rotary buttom points to "MED". The appliance is in the air-drying mode. The unit will switch off when approx. 50% r.H. is achieved.

Attention!
The marks at the rebound curve and the humidity values mentioned above are to be seen as reference values only. The hygrostat of the air dryer and a hygrometer located inside the room to be dried most probably will not indicate the same values. It is recommended to change the setting at the air dryer until the desired room humidity has been reached.

6.3 Condensate outlet

The dehumidifier AD 110 is with 3 mtr. Run off hose (12 mm). A condensate pump is optionaly delieverable (fitting, see 6.4).

Attention!
- *The end of the hose must be situated lower than the beginning of the hose (runoff socket)!*
- *The hose must never be bent!*
- *No objects must be placed onto the hose!*

6.4 Version with included condensate pump

The AD 110 is also deliverable with included condensate pump. (optional extra for additional price) The pump type „EDC Waterway Micro Pump“ The pump is integrated ex-works into the case of AD 110. A hose 10 mm (3 mtr. mounted in series) must be guided provided by the client/customer into a drain.

Electrical specification	
El. supply, frequence	230V, 50 - 60Hz
Power consumption	17 W max.
fuse	3 A
Thermal protection	80°C (autom. Reset at 25°C)
Hydraulic specification	
Max. lift	3 mtr.
Max. width	30 mtr.
Output (Ltr. / Std.)	at 3 mtr. lift = 6 Ltr. / h at 30 mtr. width = 5,7 Ltr. / h.
Water temperature	Max. 40°C
Dimensions	
Dimensions pump (length x height x width)	155 mm x 35 mm x 40 mm
Intake socket	14 to 21 mm
weight	0,35 kg
Type of protection	IP 12

6.5 Automatic defrosting

During air drying, ice may form at the evaporator. The volume of ice depends on the ambient conditions prevailing in the room to be dried. The air dryer is equipped with an automatic hot-gas defroster. It ensures that, depending on the extent of ice formation, the appliance will be defrosted automatically according to the following principle:

- A temperature sensor measures the condition existing in a critical area of the evaporator.
- It transmits the signal for defrosting to the DryLogic-electronic. The DryLogic finds out if defrosting is necessary, and it will start defrost-mode on its own.
- During defrosting the compressor works and the fan does not work.
  When the ice is defrosted, the dehumidifier will start again with dehumidifying

7 Operating conditions

AD-condensation dryer are suitable for the effort in residential buildings, in swimming halls, in garages and storerooms. AD-condensation dryer work problem-free at the temperature range of +3 to +32°C and in the case of relative humidity from 40% to 95% r.h. .

Attention!

The appliance must not be used under the following conditions:

- *in rooms of potentially explosive atmosphere*
- *in rooms of aggressive atmospheres, for example ammonia and wood acid*
- *In rooms with water which shows a pH-value outside of 7,0 to 7,4.* ***Remark****: In the case of lower pH-value, corrosion occurs at all metals and damages occurs at mortar containing materials. In the case of higher pH-value, it comes to irritation of skin and eye mucous membrane and extreme lime deposits.*
- *in rooms featuring a high concentration of solvents*
- *in rooms of an extremely high ratio of dust*

In the case of doubtful operating conditions it is recommended to contact the Technical Department of Messrs. AERIAL or a specialized dealer.
Using an AD-air dryer under inadequate operating conditions will entail that the warranty becomes null and void.

8 Technical data

Range of application	+3 bis +32°C, 40 bis 95%r.F.			
Supply voltage, frequency	230V, 50Hz			
Safety class 1 acc. to VDE 0106 T1				
Degree of protection IP54 acc. to DIN 40050				
air flow	250 m³/h			
Noise level	46 dB(A)			
dimensions (width/height/depth)	330 mm / 494 mm / 241 mm			
weight	24 kg			
refrigerant	116 g R134a (CFC-free)			
Warranty	24 Monate ab Kaufdatum			
Fusing	6 A			
Protection in swimming baths	FI-Schalter			
Performance data acc. to DIN EN 810 E				
Temperature/rel. humidity	Drying capacity **l/day**	Power consumption **Watt**	Drying coefficient **l/kW**	**kW/l**
30°C / 80%r.h.	8,5	198	1,77	0,56
27°C / 60%r.h.	4,4	182	0,99	1,01
20°C / 60%r.h.	2,7	160	0,69	1,45
10°C / 70%r.h.	1,7	142	0,49	2,02

Among other things, many different components which are installed in the condensation dryer decide on the capacity of the device. Since these components can never be completely identical, in accordance to DIN EN 810 the capacity may deviate up to 5% of specified capacity.

9 Trouble shooting

trouble	Pos.	Cause	Relief
The dehumidifier shows a bad and/or no drying capacity.	1	The humidity in that room is lower than 40% r.h. .	The effort of the dryer is uneconomical in the case of these conditions. It is recommended to disconnect the dryer. **Tipp**: Put the built-in hygrostat on an attainable value (e.g. approx. 50%r.F.), with it the dryer punctually may switch off.
	2	The air filter is soiled	The dryer does not receive air sufficiently. Clean the filter and/or install a new one. A soiled air filter can in the long run lead to disadvantages at the dryer. **Tipp**: Control the filter regularly.
	3	The temperature in that room is lower than +3°C.	Operation of the dryer is uneconomical in the case of these conditions. Switch off the device.
	4	A mistake in the cooling circuit of the dryer is possible.	The defect must be eliminated by an expert.
The automatic circuit breaker of the building disturbs the voltage supply to the device.	5	The safeguard of the building is too weak.	The building safeguard must be checked and/or transposed.
	6	A malfunction in the electrical circuit of the dryer is available.	The voltage supply of the dryer must be disturbed. (Pull power plug!) The defect must be eliminated by an expert.
The fan of the dryer is out of operation	7	The dryer is in the defrost mode	The fan starts again after some minutes. If it does not start again, the defect must be eliminated by an expert.
It occurs an unusual, strong noise formation	8	The unit is not fixed at the mounting bar	Fix the unit with the both screws on the upper side of the unit
	9	One or several case screws are not tightened correctly.	The slack case screws must be tightened correctly.
The complete dryer is out of operation	10	The dryer is switched off	Switch on the unit at on/off-switch
	11	The humidity adjusted at the hygrostat is achieved.	The dryer turns on automatically after exceeding the adjusted humidity again.
	12	There is defective at the device	The defect must be eliminated by an expert.

That dehumidifier is frozen at the evaporator very strong. You can see an ice block.	13	The room temperature is or was lower than +3°C for a time.	You might put the dryer into a room with at least +10°C and wait until the entire has thawed ice. Turn on after this the device again and it might let about 3 hours run. If a new glacial block should form itself, contact your supplier. Otherwise make sure that the device is only used in rooms, in which +3°C being at least. Ice build-up is also possible after too immediate switch-on after storage in colder conditions.
	14	There is a defective at the automatic defrost system	The defect must be eliminated by an expert.
Water drops / runs from the case of the device	15	The hose is clogged up buckled	Make sure that the condensate can flow off certainly.
	16	The hose is not moved away with slope of the device.	The wearing out must be misplaced essentially more deeper than the start of hose so that the condensate can flow off certainly.
	17	At devices with pump: The pump is defective	Please contact your supplier and check the function of the pump. For so long that the dehumidifier dehydrated, the pump must be heard regularly clear.

The dryer does not achieve the humidity adjusted at the hygrostat and/or does not switch itself off via the hygrostat.	18	The hygrostat is adjusted onto a value below 45% r.h..	A condensation dryer can achieve - depending on environmental conditions - at a minimum a value from 40 to 45% r.h. . Put the built-in hygrostat on an attainable value (e.g. approx. 50%r.h.), with it that dehumidifier punctual may switch off.
	19	The unit is to small for your application	The air changing rates, persons in that room and open water surfaces decide on the humidity load. Ask your authorized dealer to calculate if the unit has enough capacity for your application.
	20	There is a lot of moist in the walls and in the floor (Building materials) .	In this case, the dryer needs some time to remove all that water and to achieve an acceptable humidity in that room..
		There is a defective at the hygrostat	Check the hygrostat. Switches the unit off when you turn the hygrostat to position „0“?
	21	A mistake in the cooling circuit of the dryer is possible.	Check whether water gathers in the water tank. If this is not the case although the compressor ran permanently, you should get in touch with your supplier.

Attention!

The appliance must be repaired by a trained and expert personnel only. In the case of interventions by unauthorized people, any and all warranty claims shall become null and void! If you have any questions regarding defects and malfunctions of AERIAL-air dryers we recommend to get in touch with your supplier.

10 Repair and maintenance

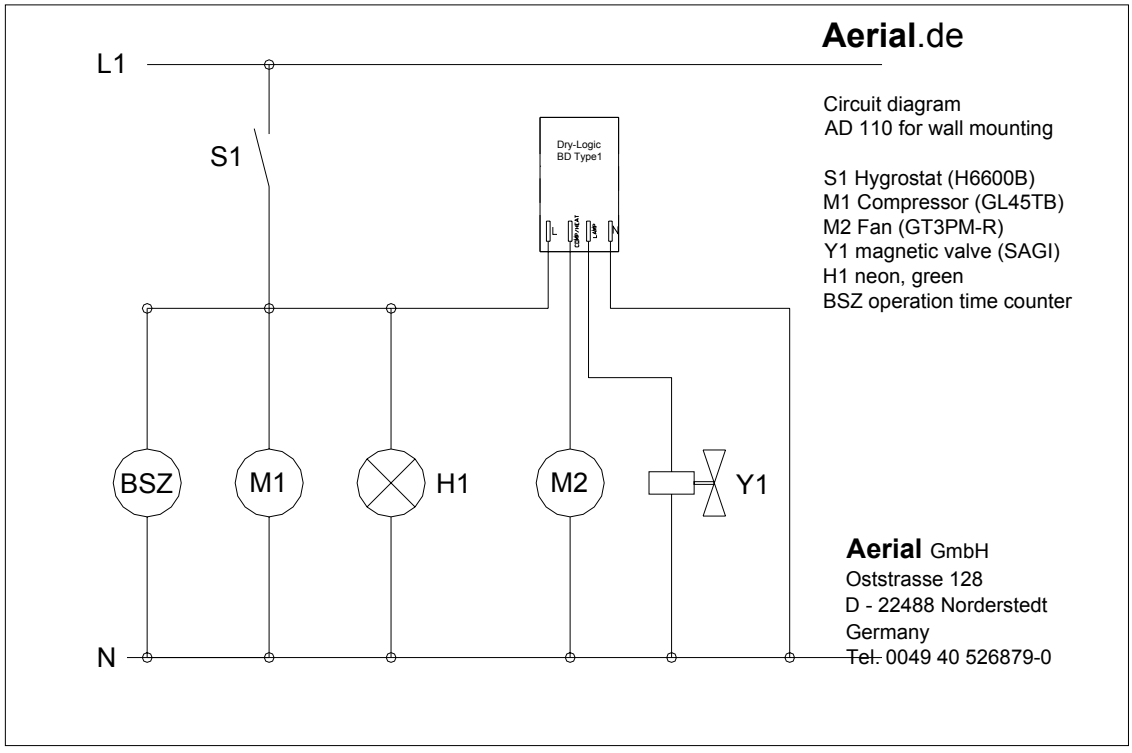
> ***Attention!***
> *When performing any repair or maintenance, the general safety rules and provisions must be adhered to!*

Um einen störungsfreien Betrieb des Luftentfeuchters sicherzustellen, sollte das Gerät regelmäßig gereinigt werden. Folgende Vorgehensweise wird dafür empfohlen:

- ✓ Units with pump: Check function of the pump.
- ✓ Switch OFF the air dryer
- ✓ Disconnect mains cable
- ✓ Remove filter for cleaning or disposal
  During strong pollution:
  - ✓ Dismantle cover and top
  - ✓ Blow out device cautiously with compressed air. (wear protective goggles!) In this case, it might ensure that all components are cleaned. (Compressor, evaporator, condenser, ect.)
- ✓ Visual inspection: Drain and connected hose
- ✓ Clean case with moist cloth. Do not use aggressive Detergent
- ✓ Mount cover and top
- ✓ Insert new or cleaned filter
- ✓ Put main plug into the sucket
- ✓ Switch on dehumidifier
- ✓

This cleaning is without fail regularly required!
No other maintenance work is required for the air dryer.

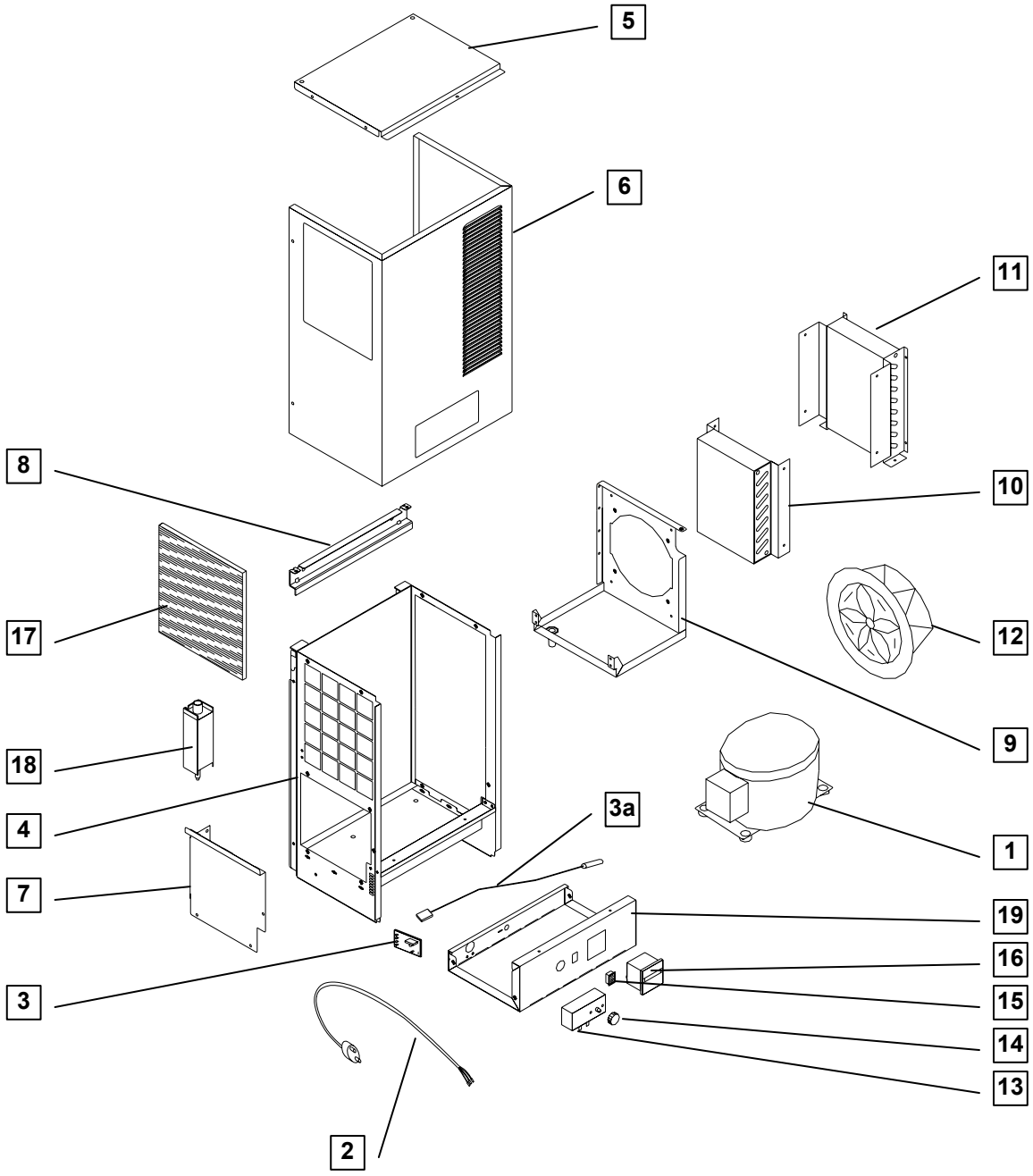
11 Circuit diagram



12 Denotation of the most important components AD 110

Pos.	Denotation	Pos.	Denotation
1	compressor	11	condenser
2	Main cable (approx. 4,5 mtr.)	12	fan, complete
3 + 3a	DryLogic with sensor	13	Hygrostat
4	Case underbase	14	Knob for hygrostat
5	Roof (= upper covering)	15	Neon, green
6	Cover (= front and side covering)	16	Operation time counter
7	Service aperture	17	Air filter
8	Mounting bar	18	Condensate pumpe (optional extra)
9	Defrosting tub and partition	19	Operation panel
10	evaporator	o. Abb.	Complete refrigeration circuit with filter dryer and capillary tube

13 Detail drawing AD 110



14 Manufacturer declaration

(EG-directive 89/392/EWG)
(EG-directive 89/336/EWG)
(EG-directive 73/ 23/EWG)

manufacturer: AERIAL GmbH - Systeme zur Luftbehandlung
Oststraße 128, D-22844 Norderstedt

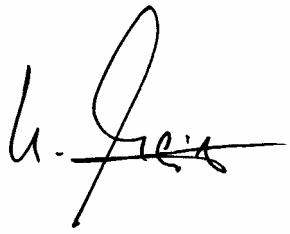
Product description: Luftentfeuchter AD 110

Rated capacity: 8,5 l/24h

The product described above is an ambient air dryer ready for connection.

Related standards:		
	EN 292	Safety of Machinery
	EN 50081-1	Electromagnetic Compatibility (EMC) Basic Specification "Emitted Interference"
	EN 50082-1	Electromagnetic Compatibility (EMC) Basic Specification "Emitted Interference"
	EN 60335-2-40	Safety of electric appliances for domestic use and similar purposes

Norderstedt, 01.09.2003 signature / stamp



15 Purchase data (please fill out)

Date of purchase: _____

Serial-no.: _____
(you find it on the type plate)

Dealer: